SECRET

MONTHLY REPORT

[redacted]

25X1

PAR 216

10 July 1964

SUBJECT: Exposure of Photographic Materials with Lasers

TASK/PROBLEM

1. Determine the manner and degree of the interaction of present and predictable future photographic films with coherent radiation from laser sources in red and near IR spectrum ranges.

DISCUSSION

2. A more refined qualitative study of the comparative gamma obtained on type 8401 film for 6328A laser illumination vs red filtered tungsten illumination was completed during this report period. Within the experimental accuracy of this experiment, and contrary to the statement of paragraph 3d. of the 4 June 1964 report, there is no detectable difference in the gamma obtained. One severe complication in this measurement has been nonuniformity of exposure across the laser beam.

3. Further photographic tests have been made to explore the several discrete positions of the lens for a fixed object-image distance which produce a discernable image. There is indication that this may be related to multiple-slit diffraction phenomena since the target was a glass reticle scale having many equally spaced parallel lines.

PLANNED ACTIVITY

4. The investigation mentioned in Paragraph 3 will be continued. It is also planned to study the effect of a diffusing medium on beam uniformity and coherence when placed in the illumination beam.

5. Tests of comparative gamma (Paragraph 2 above) for other films will be suspended with the hope that the planned studies of Paragraph 4 can provide a more uniform laser beam structure to measure gamma more accurately and with less time.

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